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Impact of SmartphonesTablets on the Information Seeking Behaviour Of Medical Students And Staff of Niger Delta University Bayelsa State - Nigeria

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ABSTRACT

Smartphones and tablets play a very significant role in medical students and staff information seeking behaviour in meeting their teaching, learning and research needs. This study investigated the impact of Smartphones/Tablets on the information seeking behaviour of medical students and staff in Bayelsa State, Nigeria. The descriptive survey design was adopted for the study using questionnaire as the main instrument for data collection from a population of 500 medical students and staff of the four faculties of the Niger Delta University College of Health Sciences. The questionnaire was personally administered to the respondents in their lecture halls and offices. Data collected were analyzed using tables, frequencies and simple percentages. A total of 460 out of the 500 questionnaire returned was found useful for data analysis showing 92% rate of response. The study revealed high level of awareness and use of smartphones/tablets by medical students and staff for their academic works. Results also shows that smartphones/tablets has made tremendous impact on their medical education most especially with easy and fast internet access, high speed browsing, saves time and money going to cybercafé/college library, easy access to medical teaching and e-learning materials/e-textbooks. Lack of technical experts on repairs when faulty within campus, operational difficulties, high cost of data subscription from service providers and fragility were identified as the major problems they encountered in using smartphones/tablets. The study recommended the need for medical university management to collaborate with IT companies to develop smartphones/tablets capable of supporting their seeking of medical and health information.

Keywords: Impact, Smartphones/Tablets, Information, Seeking-Behaviour, Medical Students, Niger Delta University, Bayelsa,-Nigeria.

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INTRODUCTION

Smartphones and tablets generally belong to a group of mobile phones that process data similar to that of personal computers with some level of personal digital assistant (PDA) integrated into them by combining both mobile phone and handheld computers into a single device. Smartphone is a mobile phone running a complete operating system in a manner similar to a traditional computer, which offer advanced computing abilities and connectivity options (Alfawareh and Jusoh, 2014). They provides high quality performance and quick access to data and information management, mobile audio and audio-visual calls, mobile teleconferencing, sending and receiving emails and quick and easy internet access. They

often appears in various sizes sleekly designed for work, learning and play by different IT companies. Some examples of Smartphones/tablets include; Sony Ericsson, Palm Treo, Blackberry, Nokia T-Mobile Sidekick, Torq, Motorola Q, E-Ten, HP iPaq, Apple ipads, ipod, iphone, Samsung Galaxy Tabs, I-mate, etc.

Smartphones/Tablets in Medical Education

The introduction of Smartphones/Tablets during the beginning of the 20th century has made a tremendous impact on medical students and staffs by changing the way they seek and retrieve information to meet their medical teaching, learning and research objectives. Since its introduction, it has been incorporated into many college and university classrooms across the nation using different educational models (Raths, 2012; Marmarelli & Ringle, 2011). The high preference amongst this unique group of users is mainly due to their portability, high functionality, higher performance capacity and ability to revitalize the broad spectrum of the entire medical teaching, learning and research process via easy and faster internet access. Smartphones allow medical students and staff to access the internet for email, instant messaging, web browsing, work documents, install programs, upload and download medical and health apps or files and lots more that are relevant to their academic work.

Today's mobile devices are multifunctional devices capable of hosting a broad range of medical apps (applications) for both students and staff in the medical and health sciences. Mobile technology is one of the latest strings of technological innovations that can be integrated into medical education (Mohapatra, Mohapatra, Chittoria, Friji and Kumar, 2015). We all agree that Smartphone use is increasingly integrated in the daily practice of medicine. Smartphone applications are used in the form of efficient medical communication, research, diagnostic and reference tools, and even in patient monitoring and examination (Yousuf, 2015). Medical apps were perceived by medical students to helped improve their clinical decision making, saved time, allowed faster access to national clinical practice guidelines, allowed faster access to common laboratory reference values, helped in making differential diagnoses, enabled useful medical related calculations, allowed faster access to reliable sources of medical knowledge, allowed faster access to reliable sources of clinical skills, allowed accurate medicine dosages calculation, allowed easier medicine dosages calculation and allowed faster access to evidence-based medical practice (Koh et al, 2014).

With the aid of these devices, students learn faster outside the classroom by having quick access to the internet and easy retrieval of required medical and health learning

resources while lecturers also keep abreast of recent trend and development as it affects their medical teaching and research needs. Smartphones/tablets are redefining the way almost everything is done in the medical academic environment and are a ready tool for faster access to all medical knowledge geared towards achieving the medical teaching, learning and research objectives of the schools. Although PDAs have been around for over a decade, the introduction of the iPhone, iPad, and other smartphones and tablets has changed the type of information that can be easily accessed on mobile devices (Boruff and Storie, 2014). Despite their relative importance in medical and health education, much is not known on their impact on seeking medical and health information by students and staff in this part of the world. In light of the above, this study becomes an invaluable research.

Statement of the Problem

Smartphones and tablets play a very significant role in medical students and staff information seeking behaviour in meeting their teaching, learning and research needs. Several relevant medical and health information are available in diverse media which medical students and staff can have access to through their smartphones and tablets. What are some of this medical information, and what are some of the major challenges they encountered in accessing desired information using such mobile devices? Despite their relative importance in medical education, little is known about the impact they made on the information seeking behaviour of both students and staff in this part of the world. This is the perceived existing gap in knowledge findings of this study will hopefully cover.

RESEARCH OBJECTIVES

1. To find out the level of awareness and use of smartphones/tablets by students and staff in gathering information for their academic works.
2. To find out the relevance of smartphones/tablets in gathering information by medical students and staff
3. To find out some of the medical resources and services smartphones/tablets are used by medical students and staff for their academic works.
4. To find out the impact of smartphones/tablets on the information seeking behaviour of medical students and staff.
5. To find out the major problems encountered by medical students and staff in using smartphones/tablets in gathering information for their academic works.

LITERATURE REVIEW

The information seeking behaviour of medical students and staff is aimed at achieving their medical teaching, learning and research objectives which defined their information needs. Smart devices are commonly used by medical students and staff to find and gather medical and health information that help capacity building in health education. The most commonly reported uses of smartphones and other mobile devices were finding drug information, clinical practice guidelines information performing clinical calculations, and taking notes, searching and reading journal articles, read point-of-care information, do clinical calculations, or perform differential diagnoses (Boruff and Storie, 2014).

Several studies do exist on the use of smartphones and tablets by medical students and staff but relatively little is known about the impact of smartphones and tablets on the information seeking behaviour of medical students and staff. Hesser and Schwartz (2013) studied ipads in the science laboratory with focus on the integration of the iPad into the laboratory curriculum while creating a paperless experience, an environment where no paper would enter or be used for the laboratory over the course of the year. Specific apps were chosen that would allow for an easy transition of course materials into an electronic format. The study found that the introduction of the ipad for students and instructors has been a positive one and can easily be implemented into any teaching laboratory. Vafa and Chico (2013) carried out a needs assessment for mobile technology use in medical education. A survey method through a 25-item questionnaire was used to gather data from 1000 first year medical students at two separate medical schools during three consecutive academic years, 2010 to 2013 on their use of mobile devices and students' interest in mobile technologies as they apply to education as well as technology issues related to implementing mobile application in education. The study found that majority of students own a smartphone or a similar mobile device which they mostly use for their education, primarily to download educational course materials, listen to podcasts/lectures, and access medical resource applications.

Manikandan, Esmail, and Nagarajan (2013) also carried out an empirical study on the Impact of Information Technology on Information Seeking Behaviour of the Users. A questionnaire was used to gather data from teaching staff, research scholars and students of four selected state universities of Tamil Nadu in India. The study reveals that most of the students, research scholars and teaching staff are impacted by new information technology

such as smartphones and tablets in their information seeking and gathering behaviour. Internet and telecommunication are most important and useful medium for retrieval of information from the vast information available in the world. Boruff and Storie (2014) studied Mobile devices in medicine: a survey of how medical students, residents, and faculty use smartphones and other mobile devices to find information. An electronic survey through questionnaire distributed to 1,2010 medical students, residents, and faculty members of four Canadian universities that investigated the types of information sought, facilitators to mobile device use in medical information seeking, barriers to access, support needs, familiarity with institutionally licensed resources, and most frequently used resources. The study found a widespread use of smartphones and tablets in clinical settings by those in their clinical clerkships, medical residents and medical trainees.

Koh and Wan (2014) studied Medical Students' Perceptions Regarding the Impact of Mobile Medical Applications on their Clinical Practices. Through the use of questionnaire they surveyed 155 first year medical students of the International Medical University, Malaysia about the demographic parameters, types of smart devices owned and the medical apps installed on the smartphones, characteristics of an ideal medical app used, the frequency and purpose of usage of the apps and the problems encountered in using mobile devices. The study found that there is high prevalence of smart devices and medical apps usage among first year clinical medical students with positive perception regarding its usage and impact on their clinical practice. And they recommended medical schools to encourage the use of medical apps among medical students with strategies put in place to safeguard patient confidentiality.

Mohapatra, Mohapatra, Chittoria, Friji and Kumar (2015) studied the scope of mobile devices in health care and medical education. They found that the use of these mobile technologies such as smartphones and other mobile internet devices has further transformed health care, communications, commerce, education, and entertainment, among other fields. Newer technologies have the potential to be adapted for improvement in health care and medical education in general. The main uses described for mobile devices in medical education can be divided into (a) information management (IM), (b) communication, and (c) time management. They recommended medical educators, public health as well as practicing physicians and surgeons to embrace this new technologies, for their adoption into the art and practice of medicine.

Davies et al (2012) investigated how mobile information resources contribute to learning for undergraduate clinical students in the UK. The study adopted mixed-methods triangulation approach using quantitative and qualitative analysis of surveys, focus group discussion and observation through usage tracking data to 387 medical students provided with a personal digital assistant (PDA) loaded with medical resources for the duration of their clinical studies. Their study results showed that the PDA was an important addition to the learning ecology rather than a replacement and contextual factors impacted on use of mobile technologies both positively and negatively on medical students learning outcomes. Interruption of clinical interaction and negative responses from teachers and patients were discovered as some of the barriers encountered while using the mobile devices during their clinical practices and those students preferred a future involving Smartphone platforms.

Mosa, Yoo, and Sheets (2012) carried out a systematic review of healthcare applications for smartphones. They discussed several articles about their design, development, evaluation or use of smartphone-based software for medical and healthcare professionals, medical or nursing students or patients from a total of 55 articles discussing 83 applications from MEDLINE searches. The study found that the use of smart phone is getting more attention in healthcare day by day. Medical applications make smart phones useful tools in the practice of evidence-based medicine at the point of care, in addition to their use in their mobile clinical communication.

Materials and Methods

The descriptive survey design method is adopted for the study and questionnaire is used as the main instrument for data collection from a population of 500 medical students and teaching staff of the four faculties of the Niger Delta University College of Health Sciences – Basic Medicine, Clinical Sciences, Nursing and Pharmacy. The questionnaire was validated by 2 independent assessors in Library and Information Science who read and made necessary corrections. The questionnaire was personally administered to the respondents in their lecture halls and offices. However, data collected were analyzed using tables, frequencies simple percentages and graphical illustrations. Above all, a total of 460 out of the 500 questionnaire returned was found useful for data analysis showing 92% rate of response as shown in Table 1 below.

Faculties	**No. Distributed**	**No. Returned**	**%**
Basic Medicine	110	100	21.8

Clinical Sciences	60	50	10.9
Nursing	200	190	41.3
Pharmacy	130	120	26.0
Total	**500**	**460**	**100**

Table 1: Population of the study/questionnaire distribution

Data Analysis and Results

Table 2: Respondents' opinion on whether they own/use smartphone/tablet for their academic works

S/N	Awareness and use of smartphones/tablets	Yes	%	No	%	Total
1	Students	400	95.3	20	4.8	420
2	Staff	38	95	02	05	40
	Total	**438**	**190.3**	**22**	**9.8**	**460**

Table 2 result shows that majority of the students and staffs (190.3%) owns and use smartphones/tablets for their academic work while only 9.8% of them neither have or use smartphones/tablets for their academic work. This shows that there is a high level of awareness and use of smartphones/tablets by medical students and staff.

Table 3: Respondents' opinion on the medical resources/services smartphones/tablets are used for their academic work

s/n		Student n=420				Staff n=40			
		Yes	%	No	%	Yes	%	No	%
1	Browsing the internet	373	88.8	47	11.2	34	85	6	15
2	Downloading e-textbooks	386	91.9	34	8.1	29	72.5	11	27.5
3	Taking notes in class/lab	319	75.9	101	24.1	-	-	-	-
4	Carrying out assignments	276	65.8	144	34.2	-	-	-	-
5	Downloading medical apps	402	95.8	18	4.2	32	80	08	20
6	Present/deliver lectures	-	-	-		13	32.5	27	67.5
7	Downloading medical e-journals	112	26.7	308	73.3	36	90	4	10
8	Recording audio/video lectures	156	37.2	264	62.8	-	-	-	-
9	Accessing online lectures and other e-learning services	261	62.2	159	37.8	19	47.5	21	52.5
10	Accessing the medical college library resources/services	63	15	357	85	04	10	36	90
11	Social networking	360	85.8	60	14.2	7	17.5	33	82.5
	Total	2348		1432		167			

Table 3 result revealed that majority of the students 402(95.8%) uses their smartphones/tablets in downloading medical apps, followed by downloading e-textbooks 386(91.9), browsing the internet 373(88.8%), social networking 360(85.8%), taking notes in class/labs 319(75.9%) while majority of staff used their smart devices for downloading medical e-journals 36(90%), browsing the internet 34(85%), Downloading medical apps 32(80%) and downloading e-textbooks 29(72.5). But majority of the respondents indicated they do not access the medical college library resources/services.

Table 4: Respondents' opinion on medical apps commonly downloaded with smartphones/tablets for their academic works.

S/N	Medical Apps downloaded via smartphones/tablets	Students	Staff	Total
1	Anaesthesiology ipocket card	10(2.3%)	-	10
2	MedCal (Medical Calculator)	30(7.1)	-	30
3	ACG Pocket Guide Tool/ECG Rhythms	-	-	-
4	Lexi-Dental Complete	15(3.6%)	-	15
5	Pocket Derm	7(1.8%)		07
6	Micromedex Drug Info	40(9.6%)	04(10%)	44
7	3D Nervous System:www.3D4medical.com	32(7.7%)	-	32
8	MedAbbrevs/ Psych Drugs/Psych Terms	18(4.2%)	03(7.5%)	21
9	Pearsons Nurses Drug Guide	30(7.1)	-	30
10	Pubmed Mobile	22(5.2%)	07(17.5%)	29
11	Speed Muscles MD/Speed Bones MD	08(1.9%)	-	08
12	The Meck Manual	22(5.2%)	04(10%)	26
13	Skycape Med Resources	20(4.8%)	-	20
14	Pocket Lab Value/Normal Lab Value/Lab Gear Value	10(2.3%)	-	10
15	Dynamed	16(3.9%)	07(17.5%)	23
16	ipharmacy/pocket pharmacist	28(6.8%)	05(12.5%)	33
17	Grays Anatomy	74(17.7%)	10(25%)	84
18	Students BMJ	38(8.9%)		38
	Total	**420(100%)**	**40(100%)**	**460**

In table 4, the respondents were ask to indicate the medical apps they commonly download with their smartphones/tablets for their academic works. Out of the 420 students, majority of the students downloads Grays Anatomy 74(17.7%), Micromedex Drug Info 40(9.6%), 3D Nervous System:www.3D4medical.com 32(7.7%), MedCal(Medical Calculator) 30(7.1) and ipharmacy/pocket pharmacist 28(6.8%) while majority of staff downloads Grays Anatomy10(25%), dynamed and Pubmed Mobile 7(17.5%), ipharmacy/pocketpharmacy5(12.5%).

Table 5.1: Respondents' opinion on the impact of smartphones/tablets in gathering information for their academic work

S/N		Positive Impact	Negative Impact	Little Impact	No Impact	Total
1	Student	342 (81.4%)	-	54 (12.8%)	24 (5.8)	420
2	Staff	32 (80%)	-	08 (2.0%)	-	40
	Total	**420**	**-**	**62 (14.8)**	**24 (5.8)**	**460**

Table 5 shows that out of 420 students 342(81.4%) of them out of 40 staff 32(80%) of them indicated that smartphones/tablets has made positive impact on their medical information seeking behaviour.

Table 5.2: Respondents' opinion on the areas smartphones/tablets is relevant in gathering information for their medical works

s/n	Response items	Student n=420				Staff n=40			
		Yes	%	No	%	Yes	%	No	%
1	Easy and fast internet access	401	95.4	19	4.6	40	100	-	-
2	High Speed Browsing	377	89.8	43	10.2	27	67.5	13	32.5
3	Saves time and money going to cybercafé/college library	343	81.7	77	18.3	23	57.5	17	42.5
4	Easy access to medical teaching and e-learning materials/e-textbooks	319	75.9	101	24.1	32	80	08	20
5	Carrying out assignments/home works/research	297	70.8	123	29.2	16	40	24	60
6	Easy note taking	174	41.4	246	58.6	-	-	-	-

7	Social networking e.g Skyping (video calls) with fellow students/lecturers/colleagues	62	14.8	358	85.3	-	-	-	-
8	Writing/submitting articles for journalpublications online	-		-		07	17.5	33	82.5
9	Useful information on point-of-care	321	76.4	99	23.6	13	32.5	27	67.5
10	Receiving online video lectures via youtube/moodle	255	60.8	165	39.2	-		-	-
11	**Total**	**2549**	**606.9**	**1231**	**293.0**	**158**	**395**	**122**	**305**

Table 5.2 tried to identify the areas respondents feel the relevance of smartphones/tablets most in gathering information for their medical works. Majority of the respondents indicated Easy and fast internet access 401(95.4%) and 40(100%), High Speed Browsing 377(89.8%) and 67.5%, Saves time and money going to cybercafé/college library 81.7% and 57.5%, Easy access to medical teaching and e-learning materials/e-textbooks 319(75.9%) and 32(80%).

Table 6: Respondents' opinion on the problems they encountered in using smartphones/tablets on their academic work

S/N	Response items	Students n=420		Staff n=40		Total
		f	%	f	%	
1	Operational difficulties/poor usage skills	75	17.8	11	27.5	46
2	Fragility (Easily damaged)	44	10.4	05	12.5	85
3	Incessant virus attack	17	4.1	02	5	21
4	High cost of data subscription/internet access from service providers	58	13.8	08	20	38
5	Irregular/unstable power supply for regular charging of battery on campus	22	5.2	-	-	22
6	Insecurity of usage due to high rate of theft on campus	30	7.1	-	-	58
7	Lack of technical experts on repairs when faulty within campus	127	30.3	14	35	141
8	Distraction via unnecessary adverts pop ups	13	3.0			15
9	Lack of awareness on their academic advantages	08	1.9	-	-	08
10	Distraction from unnecessary use of social media while reading	26	6.1	-	-	26
	Total	**420**	**100**	**40**	**100**	**460**

Table 6 result shows that majority of the respondents indicated Lack of technical experts on repairs when faulty within campus 127(30.3%) and 14(35%), Operational difficulties/poor usage skills 75(17.8%) and 11(27.5%), High cost of data subscription/internet access from service providers 58(13.8%) and 8(20%) and Fragility (Easily damaged) 44(10.4%) and 5(12.5%) as the major problems they encountered in using smartphones/tablets

DISCUSSION OF FINDINGS

The study found that majority of the respondents own and use smartphones/tablets for gathering information for their academic works. This shows that there is very high level of awareness and use of smartphones/tablets for medical education purposes. This is in line with the findings of Vafa and Chico (2013) that there is growing awareness in ownership and use of mobile technologies in medical education by both students and the medical community.

On the medical resources/services students and staff use their smartphones/tablets for their academic works, the study revealed that majority of the respondents uses their smartphones/tablets in downloading medical apps, downloading e-textbooks, browsing the internet, social networking, taking notes in class/labs. These services were quite difficult to access within the university system about a decade ago. But the advent of these devices has really helped both staff and students to access them within the confine of their palms.

Result also revealed that medical apps commonly downloaded with their smartphones/tablets for their academic works. Grays Anatomy, Micromedex Drug Info, 3D Nervous System: (www.3D4medical.com), MedCal(Medical Calculator), dynamed and Pubmed Mobile and ipharmacy/pocket pharmacist. This was not far from the findings of Koh and Wan (2014) that the top 3 most popular medical apps downloaded by medical students and staff were Medscape, Skyscape and DynaMed. Medical apps are very essential aides in gathering information for medical and health education. We found most medical students perceived medical apps as essential tools for medical undergraduate studies and felt that all medical students should own a smart device and use medical apps installed on their devices (Koh and Wan, 2014).

Results also shows majority of the respondents 342(81.4%) and 32(80%) indicated that smartphones/tablets have made positive impact on their medical information seeking behaviour. The major areas smartphones/tablets has made tremendous impact on their medical education were easy and fast internet access, high speed browsing, saves time and money going to cybercafé/college library, easy access to medical teaching and e-learning materials/e-textbooks. This is a lot relief to the students and staff as the smart devices within their disposal saves them the stress involved in accessing these essentials services in their medical teaching, learning and research activities which were previously difficult to access. But, what starts out as an initiative to make campuses greener, is beginning to deliver other unexpected benefits, such as cost savings and improvements to the learning process itself (Paddock, 2012). These services enable them to find medical information on the internet, taking and presenting notes in classes and labs reading and downloading very costly medical e-textbooks and journals that are ordinary expensive to acquire. Medical students and residents used their devices for a broader range of activities than other groups such as to find drug information, find clinical practice guidelines, read point-of-care information, do clinical calculations, or perform differential diagnoses (Boruff and Storie, 2014).

Finally, the result revealed that majority of the respondents indicated lack of technical experts on repairs when faulty within campus, operational difficulties/poor usage skills, high cost of data subscription/internet access from service providers and fragility (Easily damaged) as the major problems they encountered in using smartphones/tablets. Insecurity of usage due to high rate of theft on campus, irregular/unstable power supply for regular charging of battery on campus and distraction from unnecessary use of social media when studying were the other barriers facing the use of smartphone/tablets in medical education. Most of the respondents have to travel to distance places to put faulty devices in order. System and service reliability is also an important issue to take into account, firstly due to the possible negative sensation that the application may give to the user in the case of malfunctioning, and, secondly, due to the physical distance between the technical maintenance teams and the users (Boulos et al, 2011). This creates a lot of inconveniences for the respondents who find it difficult to sacrifice their time for such situations due to the tight schedule of their medical education calendar.

Also poor usage skills is another serious barrier bedevilling the effective use of smartphones/tablets for medical education. These are high-tech digital gadgets that are often embedded with so much functionalities and it is expected of every user to have some level of understanding to make appreciable use of them, anything less than this will amount to frustration and underutilization for medical and health education. Technological, intellectual, access and lack of awareness were some of the possible barriers they encountered in using smartphones and tablets in seeking medical and health information (Boruff and Storie, 2014).

Also, high cost of data subscription on the part of network service providers greatly impede the effective use of smartphones and tablets by both students and staff. Most users especially students of low income families find it difficult to access internet services due to the high cost of charges and frequent network failures that leads to incessant deductions of available data. Lack of regular power supply or incessant power outages mostly common in developing countries of Africa affects the effective use of smartphones/tablets for medical and health education. Due to the high functional details embedded in smartphones/tablets, their effective use demands constant or relatively regular power supply. Thus, lack or absence of this will greatly hampered the use of such high-tech digital materials for adequate medical teaching, learning and research.

CONCLUSION AND RECOMMENDATION

This study is conducted to identify the contributions of smartphones/tablets in gathering medical and health information by students and staff of Niger Delta University in supporting their medical teaching, learning and research initiatives. The study revealed a growing awareness in the use of smartphone/tablets by students and staff for accessing relevant medical and health information for educational purposes and that these devices has made a tremendous impact on their access to internet, access to study materials, note taking in classes and laboratories, accessing college portals, patient care information, writing, submitting and accessing scholarly publications in e-journals etc. Unfortunately the findings identified lack of technical support when faulty within campus, operational difficulties, poor knowledge on usage, high cost of data subscription and poor power supply as possible barriers bedevilling the use of smart devices for medical information seeking by students and staff in this part of the world.

Based on the findings and conclusion made, the following recommendations are made;

- That medical education policy makers in this university should re-evaluate and inculcate in their curricula the need for the medical education community to make use of smartphones/tablets in their medical education.
- The medical university management should collaborate with IT manufacturing companies to develop smartphones/tablets and apps suitable for teaching, learning and research needs capable of incorporating the major problems identified.
- University technical services department should train manpower that can meet the repair needs of users in other to ameliorate distances travelled to put their smart devices in other.
- Medical College/School Management should collaborate with network service providers to reduce cost of internet subscription to both students and staff that will encourage their continuous use of smartphones/tablets to support their seeking of medical and health information.

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